**Before the**
# FEDERAL COMMUNICATIONS COMMISSION
**Washington, D.C. 20554**

| | | |
|---|---|---|
| **In the Matter of** | **)** | |
| | **)** | |
| **Requests of Mobile Relay Associates for** | **)** | |
| **Waivers to Permit Part 90 Use of Channels** | **)** | **WT Docket No. 13-212** |
| **On the Band Edges Between Part 90 and** | **)** | |
| **Part 95 Spectrum** | **)** | |

To: The Deputy Chief, Mobility Division
Wireless Telecommunications Bureau
Via: Electronic Comment Filing System

## COMMENTS OF KENWOOD USA CORPORATION
## IN SUPPORT OF WAIVER REQUESTS

Kenwood USA Corporation ("Kenwood"), a major manufacturer and developer of communications equipment for, among other purposes, public safety and industrial/business land mobile communications systems, hereby respectfully submits its comments in response to the *Public Notice* (the "Notice"), DA 13-1838, released August 29, 2013 in the above captioned proceeding. The Notice seeks comment on a series of four requests for waiver[1] of Sections 2.106 and 90.35 of the Commission's Rules filed by Mobile Relay Associates ("MRA"), necessary in order to permit licensed operation by MRA at four locations[2] with station class FB8 and specifying *a 4 kHz emission designator* on the frequency pairs 462/467.5375 MHz and 462/467.7375 MHz. For its comments in support of these waiver requests, Kenwood states as follows:

[1] *See* FCC File Nos. 0005877470 (filed July 30, 2013 and amended Aug. 1, 2013 and Aug. 21, 2013); 0005895551 (filed Aug. 14, 2013 and amended Aug. 19, 2013); 0005895553 (filed Aug. 14, 2013 and amended Aug. 19, 2013) and 0005898064 (filed Aug. 16, 2013).
[2] The metropolitan areas are Los Angeles, CA; Denver, CO; Las Vegas, NV and Miami, FL.

1. MRA asks the Commission, in effect, to permit an efficient use of scarce spectrum. The Commission's specific goal in the narrowbanding proceedings (Docket 99-87) was to implement new, spectrum-efficient technologies, thus to allow a more efficient use of very limited spectrum available for Part 90 land mobile radio in the 150-174 MHz (VHF) and the 421-512 MHz (UHF) bands (the "Refarming" bands). Having developed spectrum-efficient technologies that permit the effectuation of that goal, the industry should have the opportunity now to realize the benefits of it. Notwithstanding the recent conversion to 12.5 kHz spectrum efficiency, however, there remain acute spectrum shortages for Industrial/Business facilities in various markets, including each of the four metropolitan areas that are the subject of MRA's waivers. As MRA notes, this situation is exacerbated by the (at least temporary) unavailability of the 470-512 MHz band (the so-called "T-Band") in the largest markets as the result of current legislation and the Commission's imposition of a "freeze" on new and modified applications in that band.

2. As MRA's waivers explain, the four channels which MRA wishes to use are essentially fallow spectrum, constituting buffers between Part 90 Industrial/Business channels and Part 95 GMRS services.[3] These segments were created when virtually all land mobile radio, Part 80, 90 and 95 utilized wideband emissions. That situation no longer appertains. Due to the specification of an ultra-narrow emission on the specified channels, MRA's proposed use will create no overlap of the occupied bandwidth of the specified channels with any other licensed facilities in any other service. With respect to the frequency 462.5375 MHz for example, the

[3] Though MRA asks for waiver of Section 2.106 of the Commission's Rules, the domestic table of frequency allocations, it is not believed that a waiver of this rule section is necessary. As the Commission's Public Notice explains, the four frequencies that are the subject to the waivers are each allocated for non-government land mobile operations domestically, pursuant to 47 C.F.R. § 2.106. So the only rule that requires waiver is Section 90.35, the Industrial/Business channel pool, which does not include the four channels.

closest potentially occupied channels below or above that are the center frequencies 462.53125 MHz (Part 90 with an occupied bandwidth limitation of 6 kHz) and 462.5500 MHz (Part 95 GMRS with an occupied bandwidth limitation of 20 kHz). Within these limits, a channel centered at 462.53750 MHz with an occupied bandwidth of 4 kilohertz will protect both the Part 90 and the Part 95 adjacent channels and will create no overlap. The other channels specified by MRA, 462.7375 MHz, 467.5375 MHz and 467.7375 MHz, when analyzed, demonstrate similar clearance to the nearest upper and lower adjacent channels, assuming maximum facilities.[4]

3. There is recent precedent for grant of this waiver. The Commission on January 5, 2012 issued a letter to the Land Mobile Communications Council (LMCC) granting LMCC's request to permit licensing of two, 6.25 kHz digital channels offset by 3.125 kHz from an exclusively licensed (FB8 and many public safety)[5] 12.5 kHz UHF analog channel. This permitted an applicant for two channels, each specifying 4 kHz occupied bandwidth to be licensed with the center frequencies offset by 3.125 kHz above and below the center frequency of a designated 12.5 kHz channel, so that the entire occupied bandwidth of the two, 4 kHz channels is within the passband of the designated 12.5 kHz channel. This permitted ultra-narrowband equipment users to make more efficient use of spectrum and allow licensing of channel pairs in crowded markets where other technologies would be precluded in the UHF band. See, DA 12-10, co-authored by the Chief, Mobility Division, Wireless Telecommunications Bureau, and the Chief, Policy Division, Public Safety and Homeland Security Bureau. Thus, the Commission has

[4] The Commission notes that Industrial/Business Pool frequency 462.750 MHz is exempt from narrowbanding and that 25 kHz narrowband-equivalent operation is permitted on Industrial/Business Pool frequencies 462.525, 467.525, and 467.750 MHz. However, those issues can be dealt with through the frequency coordination process, should other applicants request relief similar to that of MRA. With respect to MRA specifically, its Frequency coordinator, Forest Industries Telecommunications, specifically found with respect to each waiver request that "[t]here is no spectral overlap between the Requested Channels, on the one hand, and the operations of other Commission regulated users, on the other hand;" and that "[g]rant of the MRA application(s) would not cause harmful or objectionable interference to any protected user."

[5] It is notable that MRA proposes to license the channels subject to the instant waiver requests as FB8 facilities.

acknowledged and facilitated the use of ultra-narrowband technology to permit the most efficient possible use of scarce UHF spectrum. The same goal is achievable with similar accommodations in the instant case.

4. 4. One such land mobile radio digital technology launched in 2007 is "NXDN", which operates in both narrowband ("NB") (i.e. 12.5 kHz channel bandwidth and 8 kHz occupied bandwidth) and very narrowband ("VNB") (i.e. 6.25 kHz channel bandwidth; 4 kHz occupied bandwidth) operating modes with equipment available in the Part 90 VHF, UHF, 800 and 900 MHz bands. NXDN is an open technology devoid of license fees or royalties and managed under the stewardship of the NXDN Forum. The Forum currently comprises 34 member companies.[6] As an illustration in the context of the waiver frequencies requested by Mobile Relay Associates, Kenwood's NEXEDGE® brand NXR- 800 UHF NXDN repeater station and the NX-800 mobile radio both comply with FCC Emission Mask E for 6.25 kHz VNB channels and are FCC-OET certified for VNB emissions of 4K00F1E, 4K00F1D & 4K00F7W & 4K00F2D.[7] It is also noteworthy that all Kenwood NXDN repeater stations in all bands operating in 6.25 kHz VNB mode are equipped with an Oven Controlled Crystal Oscillator (OCXO) with a frequency stability of 0.50 ppm. If the OCXO is not running properly the NXR repeater will not transmit. It is apparent therefore that the MRA proposal is capable of effectuation without interference. As an example of the growth in deployed NXDN equipment, a January 25, 2013 audit of the Part 90

[6] NXDN Forum members as of July 2013 include Aeroflex Wichita Inc., Altonika Ltd., Arinc, Anritsu Company , Avtec Inc. , Catalyst Communications Technologies, Inc. , CML Microsystems PLC , Compliance Testing, LLC , Connect Systems Inc. , CVDS Inc. , Daniels Electronics Ltd. , Etherstack. , Eventide Inc. , EXACOM, Inc. , General Dynamics SATCOM Technologies , GME/Standard Communications Pty. Ltd. , HigherGround, Inc , Hoag Electronics, Inc. , Hytera Communications Corp., Ltd. , Icom Incorporated , JVC KENWOOD Corporation , RF Technology Pty Ltd. , Raven Electronics Corporation , Ritron Inc. , Swissphone Telecom AG , Telex Radio Dispatch Group , Timco Engineering , Trident Micro Systems , Twisted Pair Solutions , UL LLC (UL Verification Services), Ultratech Group of Labs, WAVECOM ELEKTRONIK AG , and Zetron, Inc. (see www.nxdn-forum.com for more information):

[7] See the laboratory test report spectrum graphs attached hereto as **Exhibit A**.

licensee database showed that there were 100,097 occupied channels of NXDN (4 kHz and 8 kHz occupied bandwidths), of which 80,205 were operated in the 4 kHz VNB mode only.

5. In summary, the subject channels are available for use in very crowded land mobile markets. MRA's waiver proposal represents smart, efficient use of spectrum. The Commission should immediately grant these waiver requests and encourage similar innovative efficiencies. In October of 2012, former Chairman Genachowski spoke to the Wharton School of the University of Pennsylvania about the looming spectrum shortages and ways to overcome it. In relevant part, the former Chairman stated as follows:

> Spectrum – the airwaves -- is what carries the voice and data beams from cellular, radio, and TV towers and enables the mobile devices that have become increasingly essential to our daily lives. You can think of spectrum as an essential natural resource. But like many of our natural resources, spectrum is finite, at least with current and foreseeable technologies. Just as we must pursue future-oriented energy technologies and policies, we have no choice on our airwaves: we must make better, more efficient use of spectrum.
> *****
> There were many skeptics …about whether we faced a spectrum crunch. Today virtually every expert confirms it. Unfortunately, as we recognized the magnitude of the spectrum challenge facing the country, we also saw that the spectrum pipeline we inherited was largely dry.
> *****
> How much demand will increase we can only guess, but we know this: We won't reach tomorrow's spectrum needs relying only on yesterday's spectrum toolbox. We need action on two fronts. First, technology and business innovations that dramatically increase spectrum efficiency... We need to make use of every available tool to improve spectrum efficiency. Smart antennas, MIMO (multiple input multiple output) and compression are just a few examples of the kinds of technologies that can be used to squeeze more communications capacity out of the available spectrum. Improvements in wireless receivers are also essential, so we can place services more closely together on the spectrum chart without interference. The second area we need action: moving forward on smart wireless government policies.
> *****

The above remarks note the urgency of encouraging spectrum efficiency at every turn. The Commission long ago chose narrowband conversion as a means of improving spectrum efficiency in Part 90 land mobile allocations. MRA's innovative proposal applies existing, ultra-

narrowband technology to make effective, efficient use of heretofore wasted spectrum. The Commission should proceed immediately to process and grant these waiver applications. It should also encourage other land mobile licensees to propose similar plans to promote the efficient deployment and redeployment of spectrum in the Industrial/Business Service.

Therefore, the foregoing considered, Kenwood USA Corporation respectfully requests that the Commission grant the requested waivers of Section 90.35 without limitation, on an immediate basis, and to allow MRA to obtain necessary coordination and licensing on the four channels in the markets requested.

Respectfully submitted,

**KENWOOD USA CORPORATION**

Christopher D. Imlay

By: _____
Christopher D. Imlay
Its Regulatory Counsel

Booth, Freret, Imlay & Tepper, P.C.
14356 Cape May Road
Silver Spring, MD 20904-6011
301-384-5525

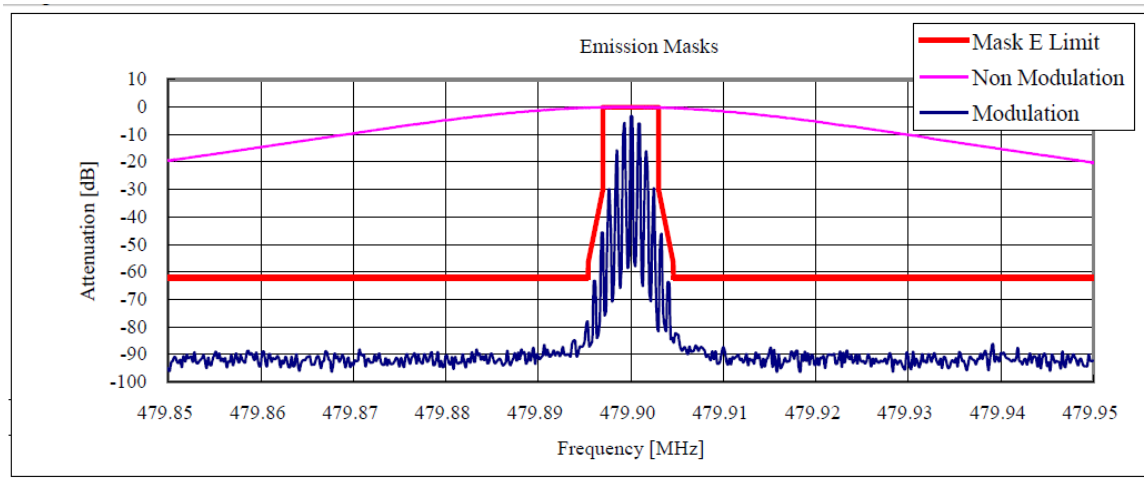
Kenwood USA Corporation
3970 Johns Creek Ct., Suite 100
Suwanee, GA 30024
(678) 474-4700

September 30, 2013

# EXHIBIT A

**Kenwood model NXR-800 Repeater**

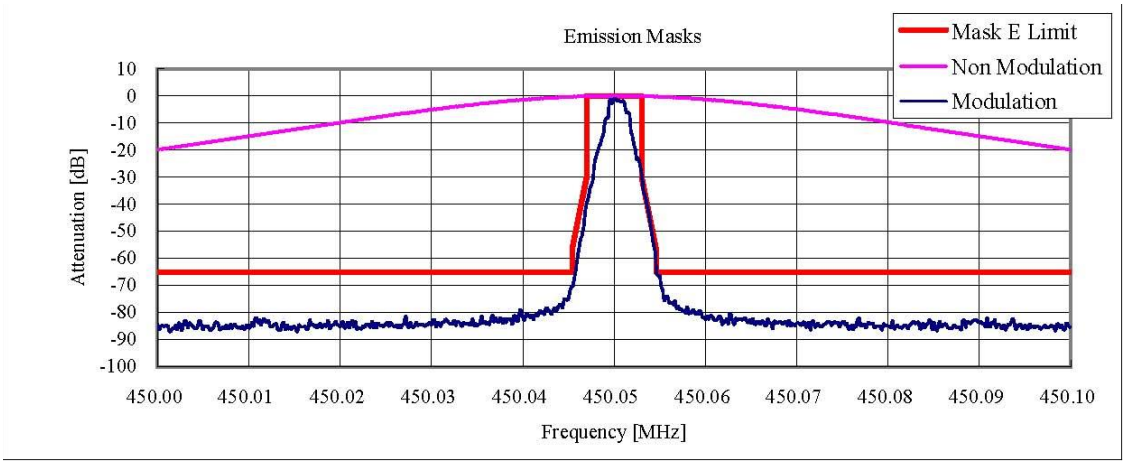
State: High Power / Authorized Bandwidth 6 kHz: 4 Level FSK / 479.90 MHz




Source: FCC OET FCC ID search; excerpt from FCC ID: K44371400 test report
https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=579410&fcc_id=K44371400

**Kenwood model NX-800 mobile transceiver**

State: High Power / Authorized Bandwidth 6 kHz: 4 Level FSK / 450.05 MHz




Source: FCC OET FCC ID search; excerpt from FCC ID: K44378700 test report
https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=619588&fcc_id=K44378700